

Project Baseline Summary Report

Data Source: **EM CDB**
Operations/Field Office: **Richland**
Site Summary Level: **Hanford Site**
Project **RL-WM05 / Liquid Effluents Project**

Report Number: **GEN-01b**
Print Date: **3/9/2000**
HQ ID: **0397**

General Project Information

Project Description Narratives

Purpose, Scope, and Technical Approach:

Purpose: The Liquid Effluents Project provides integrated liquid effluent management to support cleanup of the Hanford Site. Its mission is to responsibly manage current and future liquid effluent streams in a safe, cost-effective, and environmentally-compliant manner. Waste volume reduction support is also provided to tank waste remediation. The mission is achieved through planning and integration; stakeholder interaction; definition of requirements for generators; and provision of timely storage, treatment and disposal capability. The Liquid Effluents Project receives, treats, and disposes of liquid effluents from other projects. Waste acceptance criteria are established for liquid effluents, and compliance with discharge limits is verified.

Scope: Specific project scope from the Hanford Site technical baseline is provided below in terms of the systems that the project has responsibility for.

200 LEF

- **200 LWPf Minimum Safe:** Operate and maintain the 242-A Evaporator, LERF, ETF (including 291 Load-In Facility), and 200 Area TEDF in a safe, cost-effective, and environmentally-compliant manner. Operations and maintenance are defined as those operations, maintenance, engineering, surveillances, reporting, and support activities required by DOE, State and Federal regulations, and facility permits. Permitting and support to ensure regulatory compliance of Miscellaneous Streams is included.
- **Provide 200 LWPf Life Extension/Upgrade:** Complete projects to modify the 200 LWPf facilities to improve their operation, extend their useful life, ensure regulatory compliance, or correct deficiencies. (Not funded in FY 2001.)

300 LEF

- **300 LEF (TEDF) Minimum Safe:** Operate and maintain the 300 Area TEDF and the 307 Retention Basins in a safe, cost-effective, and environmentally-compliant manner. Operations and maintenance are defined as those operations, maintenance, engineering, surveillances, reporting, and support activities required by DOE, State and Federal regulations, and facility permits.
- **300 LEF (340 Facility) Minimum Safe:** Operate and maintain the 340 Facility in a safe, cost-effective, and environmentally-compliant manner. Operations and maintenance are defined as those operations, maintenance, engineering, surveillances, reporting, and support activities required by DOE, State and Federal regulations, and facility permits.
- **LEF Compliance (340 Shutdown):** Shut down and clean out the 340 Facility. The RLWS will be isolated, and the RPS decoupled from the RLWS. Transfer lines will be flushed, solids in the tanks removed, selected portions of the 340 Facility decontaminated and remaining contamination stabilized, and wastes transferred for final disposal. The work included is over and above the minimum safe operation, maintenance, and engineering support required for the 340 Facility. A complete description of the work scope is provided in the 340 Facility Deactivation Project Management Plan, HNF-2230. (Not funded in FY 2001.)

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- 300 LEF Life Extension/Upgrades: Complete projects to modify the 300 LEF facilities to improve their operation, extend their useful life, ensure regulatory compliance, or correct deficiencies. (Not funded in FY 2001.)

Technical Approach: The Liquid Effluents Project supports the following end point targets assigned to other projects in the Hanford Strategic Plan. These cleanup activities could not occur, or would be significantly delayed at substantially greater cost, without the support of the Liquid Effluents Project.

Spent Nuclear Fuel Project

- Spent fuel removed and K-Basins cleaned sufficient to transition to D&D.

Environmental Restoration Project

- Groundwater use remains restricted for a yet to be determined period; groundwater intercepted or contained to within designated boundaries.
- Operate the ERDF to accept waste from remediation of CERCLA units across the Hanford Site.

Facility Stabilization Project

- Drain, decontaminate, and stabilize K-Basins Facility.
- Transition high-cost surplus facilities to a low-cost, stable deactivated condition.
- Continue to provide safe storage for Cs/Sr capsules in the Waste Encapsulation and Storage Facility (WESF) indefinitely. WESF decoupled and a standalone facility.
- Complete stabilization of plutonium in PFP (DNFSB 94-1 implementation).
- Transition production areas of PFP to a low cost stable, deactivated condition; continue safe, stable, interim storage of plutonium.
- Transition the Fast Flux Test Facility (FFTF) to a low-cost, stable deactivated condition.
- Transition the 324/327 Buildings to a low-cost, stable deactivated condition and disposition their nuclear materials (including 324 Building radioactive tank wastes).

Waste Management Project

- Low-level and low-level mixed waste from onsite and offsite sources (including PNNL special case wastes) will continue to be disposed of in the 200 Area.

Tank Waste Remediation Project

- Retrieve tank wastes to the extent needed for tank closure, divide into high-level and low-activity fractions, and immobilize.

The facilities owned and operated by the Liquid Effluents Project and the technical approach to accomplishing its mission is described below.

242-A Evaporator - The 242-A Evaporator concentrates dilute liquid tank wastes by evaporation. The volume of tank wastes is reduced to eliminate the need to construct additional double-shell tanks (DSTs). The concentrated waste is returned to tank farms for storage. Process condensate from the 242-A Evaporator is sent to the LERF for temporary storage while awaiting treatment in the ETF.

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Liquid Effluent Retention Facility (LERF) - The LERF consists of three RCRA-compliant surface impoundments for temporarily storing process condensate from the 242-A Evaporator and other liquid effluents. The LERF provides equalization of the flow and pH of the feed to the ETF.

Effluent Treatment Facility (ETF) - Liquid effluents are treated in the ETF to remove toxic metals, radionuclides, and ammonia and to destroy organics. The ETF treatment process includes pH adjustment, filtration, ultraviolet light/peroxide (UV/OX) destruction of organics, reverse osmosis (RO), and ion exchange. A truck unloading facility allows liquid effluents to be received from other projects. A cross-site transfer system is used to transfer groundwater and ERDF leachate to the ETF for treatment. The treated effluent has been delisted from RCRA and is discharged under a WAC 173-216 State Waste Discharge Permit to a state-approved land disposal site (SALDS) in the 200 West Area.

200 Area Treated Effluent Disposal Facility (200 Area TEDF) - The 200 Area TEDF is a collection and disposal system for non-RCRA waste streams. The effluent is discharged to two 5-acre disposal ponds located east of the 200 East Area. Discharge from the 200 Area TEDF must comply with limits specified in the WAC 173-216 State Waste Discharge Permit.

300 Area Treated Effluent Disposal Facility (300 Area TEDF) - The 300 Area TEDF treats industrial wastewater from laboratories and research facilities in the 300 Area. The wastewater is received via the process sewer. Liquid effluents from other projects which meet acceptance criteria can also be received and treated in the 300 Area TEDF. Treatment includes pH adjustment, precipitation, filtration, UV/OX, and ion exchange. The process removes toxic metals including mercury, and destroys organics and cyanide. Treated effluent is monitored and discharged to the Columbia River under an NPDES permit.

307 Retention Basins - The retention process sewer system in the 300 Area receives liquid effluents which are potentially radioactive. These liquid effluents collect in the 307 Retention Basins where they are monitored and batch released to the process sewer for subsequent treatment in the 300 Area TEDF. Provisions exist for diverting and isolating off-specification liquid effluents.

340 Waste Handling Facility - The 340 Facility previously received radioactive/mixed liquid waste from laboratories in the 300 Area for loadout and transfer to tank farms in the 200 Area. Waste was received via the radioactive liquid waste system and accumulated in two 15,000 gal tanks located in a covered, below-grade vault in the 340 building. Six above-ground 8,000-gal tanks in the adjacent 340-A building provided backup storage capability. The 340-B building was used for rail loadout of the wastes. The 340 Facility ceased receiving liquid wastes in September 1998, but residual waste remains in the tanks. Minimum safe operation and maintenance of the 340 Facility will continue until cleanout is completed.

Miscellaneous Streams - Miscellaneous Streams include liquid effluents generated from hydrotest, maintenance, and construction activities; cooling water and condensate discharges; and storm water run-off. These discharges are considered non-hazardous and non-radioactive. Categories of Miscellaneous Streams are permitted under the WAC 173-216 State Waste Discharge Permit Program rather than permitting individual streams. Use of categorical permits provides a vehicle to easily permit new Miscellaneous Streams of similar characteristics and origin.

Project Status in FY 2006:

200 LEF

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- The 242-A Evaporator, LERF, ETF, and 200 Area TEDF continue to operate in support of site cleanup.
- Projects have been completed or are planned to improve the operation, extend the useful life, ensure regulatory compliance, or correct deficiencies at the 200 LWPF facilities.

300 LEF

- Projects have been completed or are planned to improve the operation, extend the useful life, ensure regulatory compliance, or correct deficiencies at the 300 LEF facilities.
- Portions of the 340 Facility continue to be used to support operation of the 307 Retention Basins. Initial deactivation of the 340 Facility as described in the PMP has been completed. Some systems remain active or are in passive standby mode. Areas of the facility which have been deactivated are subject to reduced surveillance and monitoring.
- Initial deactivation of the 340 Facility has been completed. The radioactive liquid waste system has been flushed and isolated, residual waste in the 340 Facility has been removed or stabilized, and radiological control areas have been minimized.
- The 300 Area TEDF and 307 Retention Basins, including the process sewer and retention process sewer systems, continue to operate in support of site cleanup.

Post-2006 Project Scope:

200 LEF

- The 242-A Evaporator will operate until the TWRS Privatization Phase 2 LAW immobilization facilities are in operation in FY 2018. The LERF and ETF will operate until FY 2030. The 242-A Evaporator, LERF, and ETF will be shut down and cleaned out, and transferred to the Facility Stabilization Project for deactivation. The 200 Area TEDF will operate until FY 2035, and be shut down and transferred to the Infrastructure Project (Landlord Program) for re-use or demolition.
- Projects will be completed to improve the operation, extend the useful life, ensure regulatory compliance, or correct deficiencies at the 200 LWPF facilities.

300 LEF

- Projects will be completed to improve the operation, extend the useful life, ensure regulatory compliance, or correct deficiencies at the 300 LEF facilities.
- Portions of the 340 Facility will be used to support operation of the 307 Retention Basins until FY 2030. The 340 Facility will undergo final deactivation as described in the PMP and be transferred to the Environmental Restoration Project for D&D.

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- Final deactivation of the 340 Facility is included in 300 LEF (340 Facility) Minimum Safe.
- The 300 Area TEDF and 307 Retention Basins will operate until FY 2030. The 300 Area TEDF will be shut down and transferred to the Infrastructure Project (Landlord Program) for re-use or demolition. The 307 Retention Basins will be deactivated and transferred to the Environmental Restoration Project for D&D.

Project End State

Contaminated facilities (i.e., 242-A Evaporator, LERF, and ETF) are generally cleaned out at the end of their useful lives and turned over to the Facility Stabilization Project for deactivation. Each facility being transitioned must meet certain acceptance criteria, which will vary by facility. A Memorandum of Understanding will be developed with Facility Stabilization. A Facility Turnover Agreement will be developed to document the condition of each facility at the time of turnover. A Facility Assessment will be performed as part of the turnover. The Liquid Effluents Project will perform deactivation of the 307 Retention Basins and 340 Facility. The 307 Retention Basins and 340 Facility will then be transferred to the Environmental Restoration Project for D&D. Uncontaminated facilities (i.e., 200 Area TEDF and 300 Area TEDF) are generally turned over to the Infrastructure Project (Landlord Program) for re-use or demolition.

Specific work activities to close the facilities under this Project to be performed by others at the end of this Project's mission are identified below.

200 LEF

Work associated with facility performed by Accelerated Deactivation:

- Maintain Safe & Compliant Liquid Effluent Retention Facility in CP Areas
- Transition Liquid Effluent Retention Facility
- Transition 200 Area Effluent Treatment Facility
- Maintain Safe & Compliant 242-A Evaporator Facility in CP Areas
- Maintain Safe & Compliant 200 Area Effluent Treatment Facility in CP Areas
- Transition 242-A Evaporator Facility

Work associated with facility performed by Landlord:

- Survey and Maintain 200 Area TEDF
- Transition 200 Area TEDF
- Disposition 200 Area TEDF

Work associated with facility performed by Decontamination & Decommissioning:

- Decontaminate and Decommission (D&D) 242-A Evaporator Facility
- Decontaminate and Decommission (D&D) 200 Area Effluent Treatment Facility
- Decontaminate and Decommission (D&D) Liquid Effluent Retention Facility

300 LEF

Work associated with facility performed by 300 Area Source Remedial Action:

- Transition 307 Retention Basins

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Decontaminate and Decommission (D&D) 340 Waste Handling Facility
Maintain Safe & Compliant 307 Retention Basins in South 600 Areas
Decontaminate and Decommission (D&D) 307 Retention Basins
Work associated with facility performed by Landlord:
Transition the 300 Area TEDF
Disposition 300 Area TEDF

Cost Baseline Comments:

This cost baseline was developed using Activity Based Cost Estimating and resource loaded schedules. Escalation was applied in accordance with Fluor-Daniel Hanford budget guidance.

Safety & Health Hazards:

The Liquid Effluents Project receives and processes wastewater, generated by other Hanford projects, that contains small amounts of radiological or hazardous materials. Liquid effluents are received from such diverse programs as the Tank Waste Remediation System (TWRS), Spent Nuclear Fuel (SNF), Facility Stabilization, Infrastructure, Environmental Restoration, and Technology Management projects, and other Waste Management facilities. The Liquid Effluents Project operates a variety of new and old facilities. Newer facilities (in operation for less than 5 years) include the LERF, ETF, 200 Area TEDF, and 300 Area TEDF. Older facilities include the 242-A Evaporator, 307 Retention Basins, and 340 Waste Handling Facility.

PROJECT STOPPED RISKS

If this project were stopped, liquid effluent processing services would not be available to support the requirements of a wide range of Hanford cleanup activities. A number of important Hanford projects could not proceed as planned. As a result, the hazards managed by a number of Hanford projects would pose greater public, worker, and environmental risks.

If the 242-A Evaporator and ETF were not operated, the TWRS program would have a reduced capability to manage tank wastes. Tank wastes would be required to be stored longer. New waste additions would increase the volume of waste stored in the tanks. Management of tank wastes would become more complex. Salt-well pumping to remove liquid waste from single-shell tanks would be restricted. The potential for tank leaks and spills would increase. Leaks to the soil could reach the groundwater, and eventually migrate to the river or other publicly accessible location. The frequency of accidents involving radioactive contamination and radiation exposure to workers would increase. Supporting information on the risks associated with stopping portions of TWRS operations can be found in the PBS for the Tank Farms Operations Project RL-TW03.

If the Liquid Effluents Project were stopped before TWRS makes substantial reductions in tank waste volumes, then non-fatal radiological overexposures or illnesses to a member of the public may occur. While a tank leak may occur within 10 years of halting the project, the migration of contaminants to the groundwater and subsequent movement to an offsite location would require up to 100 years. This corresponds to a public health risk of "2C-Medium". Extreme overexposures leading to cancer fatalities could occur, but this would have a lower likelihood. Public health risks would be reduced to "3D-Low" after the retrieval of all tank wastes from single-shell tanks is completed. Further reduction would occur after the completion of LAW immobilization. After HLW immobilization and other Hanford projects which generate liquid effluents are completed, the risk drops to "N/A".

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The impact on worker risk of stopping this project would be associated with increased likelihood of overexposures, illnesses with a limited period of disability (<3 months), and injuries requiring hospitalization. It is estimated that the probability of such an event would be between 0.1 and 1.0 per year. This corresponds to a worker health and safety risk of "3B-Medium". More severe impacts could occur at a lower probability, resulting in comparable or lower risks to workers. Worker risks would be reduced to "3C-Low" after the retrieval of all tank wastes from single-shell tanks is completed.

The impact on the environment of stopping this project would be associated with increased likelihood of catastrophic tank failures and the spread of contamination over a wide area which would require an extremely long time to recover. It is estimated that the time until high concentrations of contaminants reached the ecosystem would be between 10 and 100 years. This corresponds to an environmental risk of "1C-High". Environmental risks would be reduced to "3C-Low" after the retrieval of all tank wastes from single-shell tanks is completed.

PROJECT IMPLEMENTED RISKS

During the implementation of the Liquid Effluents Project, a different set of risks are posed. Risks associated with operating the project can be estimated based on existing safety analysis studies and recent project statistics on worker health and safety.

Risks to the general public over the next few years are projected to be "3D-Low" largely due to cleanout activities at the 340 Facility after it ceases receiving waste. The probability of a release of sufficient size so as to affect the public is estimated to be less than 0.01 per year. The best estimate of the risk to the public is that only slight overexposure is credible due to the limited quantity of radioactive materials involved. After cleanout of the 340 Facility is completed, the risk to the public from operating the remaining Liquid Effluents facilities is "N/A".

Worker risk remains at "3B-Medium" because cleanout of the 340 Facility will require working in contaminated areas, removal and handling of radioactive and hazardous materials, nonstandard operations (e.g., loadout and transportation of wastes to the 200 Area by tanker truck instead of railcar), and construction unknowns. The probability of an event is estimated to be between 0.1 and 1.0 per year. After cleanout of the 340 Facility is completed, the worker risk will decrease to "3C-Low" consistent with safe and compliant operation of the remaining Liquid Effluents facilities.

Environmental risk is "3C-Low" during cleanout of the 340 Facility. The probability of a release of sufficient size to affect a small geographic area is estimated to be between 0.01 and 0.1 per year. After cleanout of the 340 Facility is completed, the environmental risk will decrease to "3D-Low" when the probability of a release from any of the remaining Liquid Effluents facilities is less than 0.01.

At the completion of the Liquid Effluents Project, remaining radioactive and hazardous materials will be removed from project facilities. Buildings and equipment will be placed in a safe shutdown condition. The facilities will then be transferred to other projects to undergo deactivation, and (if required) decontamination and decommissioning.

RISK METRICS

A simple overall risk reduction metric is the completion of key Hanford projects that require the processing of liquid effluents (e.g., removal of spent fuel and cleanup of K Basins by the Spent Nuclear Fuel Project).

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Safety & Health Work Performance:

Covered in PBS RL-WM03 for the Waste Management Project.

PBS Comments:

This section includes key information relative to the project that is not covered in other narratives.

The target level funding reflected in section B.1 is different than the baseline budget contained in this PBS, and reflects reductions in scope that would be taken from this project if needed enhanced performance targets are not realized for the site to meet the overall anticipated funding level. Specific impacts in FY 1999 and their consequence would be:

Not funding activities that are required to support miscellaneous stream permits; 340 facility shutdown activities and required normal process modifications for an operating facility. Not supporting miscellaneous stream permitting could result in potential fines due to missed MOU agreements. Not supporting 340 facility shutdown activities results in no mortgage reduction cost savings and required regulatory upgrades for compliance. Not funding required process modifications contributes loss of production and potential safety concerns with employees.

(LEF Compliance...885K)

(LEF Life Extension...1,500K)

Baseline Validation Narrative:

During September 1998, the DOE conducted an exhaustive review of the project baseline. The purpose of the review was to ensure that Activity Based Cost Estimating methodologies were utilized, the planning bases were sound, and the results were adequately documented. Comprehensive interviews were also conducted with key members of the project team. Relatively minor changes have been included in routine baseline changes.

TECHNICAL APPROACH REFERENCE DOCUMENTS

- Waste Management Project Fiscal Year 1999 Multi-Year Work Plan WBS 1.2, HNF-SP-1229 Rev. 2
- Hanford Site Technical Database (HSTD)

General PBS Information

Project Validated?	Yes	Date Validated:	9/29/1998
Has Headquarters reviewed and approved project?	Yes		
Date Project was Added:	12/1/1997		
Baseline Submission Date:			
FEDPLAN Project?	Yes		

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Drivers:	CERCLA	RCRA	DNFSB	AEA	UMTRCA	State	DOE Orders	Other
	Y	Y				Y	Y	Y

Project Identification Information

DOE Project Manager: Helen E. (Beth) Bilson)

DOE Project Manager Phone Number: 509-376-1366

DOE Project Manager Fax Number: 509-372-1926

DOE Project Manager e-mail address: Helen_E_Beth_Bilson@rl.gov

Is this a High Visibility Project (Y/N):

Planning Section

Baseline Costs (in thousands of dollars)

	1997-2006 Total	2007-2070 Total	1997-2070 Total	1997	Actual 1997	1998	Actual 1998	1999	2000	2001	2002	2003	2004	2005	2006	
PBS Baseline (current year dollars)	326,548	1,012,046	1,338,594	37,359	34,698	31,076	27,802	30,023	31,755	32,272	32,875	33,734	32,017	32,362	33,075	
PBS Baseline (constant 1999 dollars)	307,869	651,604	959,473	37,359	34,698	31,076	27,802	30,023	31,102	30,928	30,827	30,952	28,744	28,429	28,429	
PBS EM Baseline (current year dollars)	326,548	1,012,046	1,338,594	37,359	34,698	31,076	27,802	30,023	31,755	32,272	32,875	33,734	32,017	32,362	33,075	
PBS EM Baseline (constant 1999 dollars)	307,869	651,604	959,473	37,359	34,698	31,076	27,802	30,023	31,102	30,928	30,827	30,952	28,744	28,429	28,429	
	2007	2008	2009	2010	2011- 2015	2016- 2020	2021- 2025	2026- 2030	2031- 2035	2036- 2040	2041- 2045	2046- 2050	2051- 2055	2056- 2060	2061- 2065	2066- 2070
PBS Baseline (current year dollars)	33,879	34,872	35,386	36,082	193,269	200,922	188,590	210,257	78,789	0	0	0				

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	2007	2008	2009	2010	2011- 2015	2016- 2020	2021- 2025	2026- 2030	2031- 2035	2036- 2040	2041- 2045	2046- 2050	2051- 2055	2056- 2060	2061- 2065	2066- 2070
PBS Baseline (constant 1999 dollars)	28,494	28,697	28,494	28,429	142,718	133,072	112,028	112,023	37,649	0	0	0				
PBS EM Baseline (current year dollars)	33,879	34,872	35,386	36,082	193,269	200,922	188,590	210,257	78,789	0	0	0				
PBS EM Baseline (constant 1999 dollars)	28,494	28,697	28,494	28,429	142,718	133,072	112,028	112,023	37,649	0	0	0				

Baseline Escalation Rates

1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
0.00%	0.00%	0.00%	2.10%	2.20%	2.20%	2.20%	2.20%	2.20%	2.20%	2.20%	2.20%	2.20%
2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035	2036-2040	2041-2045	2046-2050	2051-2055	2056-2060	2061-2065	2066-2070
2.20%	2.20%	2.20%	2.20%	2.20%	2.20%	2.20%	2.20%	2.20%				

Project Reconciliation

Project Completion Date Changes:

Previously Projected End Date of Project: 9/30/2032

Current Projected End Date of Project: 9/30/2031

Explanation of Project Completion Date Difference (if applicable):

Project Cost Estimates (in thousands of dollars)

Previously Estimated Lifecycle Cost (1997 - 2070, 1998 Dollars):	934,776	Actual 1997 Cost:	34,698	Actual 1998 Cost:	27,802
Previously Estimated Lifecycle Cost of Project (1999 - 2070, 1998 Dollars):	872,276	Inflation Adjustment (2.7% to convert 1998 to 1999 dollars):			23,551
Previously Estimated Lifecycle Cost (1999 - 2070, 1999 Dollars):	895,827				

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Project Reconciliation

Project Cost Changes

	Cost Adjustments	Reconciliation Narratives
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Cost Change Due to Scope Deletions (-):

Cost Reductions Due to Efficiencies (-):

Cost Associated with New Scope (+):

Cost Growth Associated with Scope Previously Reported (+):

Cost Reductions Due to Science & Technology Efficiencies (-):

Subtotal:	895,827
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Additional Amount to Reconcile (+):	-4,789
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Current Estimated Lifecycle Cost (1999 - 2070, 1999 Dollars):	891,038
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Milestones

Milestone/Activity	Field Milestone Code	Original Date	Baseline Date	Legal Date	Forecast Date	Actual Date	EA	DNFSB	Mgmt. Commit.	Key Decision	Intersite
SUBMIT TO EPA & ECOL EVAL OF DEVEL STATUS OF TRITIUM TREAT TECH	LEP-99-001	8/31/1999	8/31/1999	8/31/1999			Y				
SUBMIT TO EPA & ECOL EVAL OF DEVEL STATUS OF TRITIUM TRMT TECH	LEP-03-001	8/31/2003	8/31/2003	8/31/2003			Y				
SUBMIT TO EPA & ECOL EVAL OF DEVEL STATUS OF TRITIUM TREAT TECH	LEP-01-001	8/31/2001	8/31/2001	8/31/2001			Y				
SUBMIT TO EPA & ECOL EVAL OF DEVEL STATUS OF TRITIUM TRMT TECH	LEP-05-001	8/31/2005	8/31/2005	8/31/2005			Y				
Begin Liquid Effluent Project	PBS-97-012		2/28/1997								
PBS Mission Completion	PBS-MC-012		9/30/2031								
PBS Project End	PBS-PE-012		9/30/2031								

Milestones - Part II

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Milestone/Activity	Field Milestone Code	Critical Decision	Critical Closure Path	Project Start	Project End	Mission Complete	Tech Risk	Work Scope Risk	Intersite Risk	Cancelled	Milestone Description
SUBMIT TO EPA & ECOL EVAL OF DEVEL STATUS OF TRITIUM TREAT TECH	LEP-99-001										Submit to Ecology and EPA a biennial report to evaluate the development status of tritium treatment technology that would be pertinent to the cleanup of tritiated waste water (e.g., the 242-A Evaporator process condensate liquid effluent) and tritium-cont
SUBMIT TO EPA & ECOL EVAL OF DEVEL STATUS OF TRITIUM TRMT TECH	LEP-03-001										Prepare a biennial report to evaluate the development status of tritium treatment technology that would pertain to the cleanup of tritiated waste water (e.g., the 242-A Evaporator process condensate liquid effluent) and tritium-contaminated groundwater on
SUBMIT TO EPA & ECOL EVAL OF DEVEL STATUS OF TRITIUM TREAT TECH	LEP-01-001										Submit to Ecology and EPA a biennial report to evaluate the development status of tritium treatment technology that would pertain to the cleanup of tritiated waste water (e.g., the 242-A Evaporator process condensate liquid effluent) and tritium-contamina
SUBMIT TO EPA & ECOL EVAL OF DEVEL STATUS OF TRITIUM TRMT TECH	LEP-05-001										Prepare a biennial report to evaluate the development status of tritium treatment technology taht would pertain to the cleanup of tritiated waste water (e.g., the 242-A Evaporator process condensate liquid effluent) and tritium-contaminated groundwater on
Begin Liquid Effluent Project	PBS-97-012				Y						Administrative input to document the start of this PBS.

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Milestones - Part II

Milestone/Activity	Field Milestone Code	Critical Decision	Critical Closure Path	Project Start	Project End	Mission Complete	Tech Risk	Work Scope Risk	Intersite Risk	Cancelled	Milestone Description
PBS Mission Completion	PBS-MC-012					Y					Administrative input to document the mission completion of this PBS.
PBS Project End	PBS-PE-012				Y						Administrative input to document the project end of this PBS.

Performance Measure Metrics

Category/Subcategory	Units	1997-2006 Total	2007-2070 Total	1997-2070 Total	Actual Pre-1997	Planned 1997	Actual 1997	Planned 1998	Planned 1999	Planned 2000	Planned 2001	Planned 2002	Planned 2003	Planned 2004
Fac.														
Deact. During Per.	NF	0.00	1.00	1.00										
HLW														
Treatment	M3	56,775.02	24,200.00	80,975.02	0.00		0.00		3,780.00	7,570.00	10,600.00	10,976.50	12,110.00	0.00
Category/Subcategory	Units	Planned 2004	Planned 2005	Planned 2006	Planned 2007	Planned 2008	Planned 2009	Planned 2010	Planned 2011 - 2015	Planned 2016 - 2020	Planned 2021 - 2025	Planned 2026 - 2030	Planned 2031 - 2035	Planned 2036 - 2040
Fac.														
Deact. During Per.	NF					1.00								
HLW														
Treatment	M3	0.00	7,948.52	3,790.00	3,030.00	1,510.00	1,890.00	2,270.00	9,830.00	5,670.00				
Category/Subcategory	Units	Planned 2036 - 2040	Planned 2041 - 2045	Planned 2046 - 2050	Planned 2051 - 2055	Planned 2056 - 2060	Planned 2061 - 2065	Planned 2066 - 2070	Exceptions	Lifecycle Total				
Fac.														
Deact. During Per.	NF								8.00	9.00				

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Category/Subcategory	Units	Planned 2036 - 2040	Planned 2041 - 2045	Planned 2046 - 2050	Planned 2051 - 2055	Planned 2056 - 2060	Planned 2061 - 2035	Planned 2066 - 2070	Exceptions	Lifecycle Total
HLW										
Treatment	M3									81,025.02

Release Sites

Site Code	RSF ID	Change Flag	Description	Class/Subclass Name	Planned Assess. Year	Forecast Assess. Year	Actual Assess. Date	Planned Comp. Year	Forecast Comp. Year	Actual Comp. Date	Acc. Year	No Action	Comp. Status	RAD
HASI	8370	R	200 ETF, 200 Area Effluent Treatment Facility (ETF), 2025-E	/										
HASI	8371	R	200-A TEDF, 200 Area Treated Effluent Disposal Facility, TEDF, 600-145, 216-E-43A and 216-E-43B	/										
HASI	8372	R	200-E-17, 200 Area Liquid Effluent Retention Facility (LERF)	/										
HASI	8373	R	207-A-NORTH, 207-A, 207-A Retention Basin, 207-A-NORTH Retention Basin, 207-A North	/										
HASI	8374	R	207-A-SOUTH, 207-A, 207-A Retention Basin, 207-A-SOUTH Retention Basin, 207-A South	/										
HASI	8375	R	242-A, 241-A Evaporator	/										
HASI	8376	R	300 RLWS, 300 Area RLWS, 300 Area Radioactive Liquid Waste Sewer	/										
HASI	8377	R	300 RRLWS, 300 Area Retired RLWS, 300 Area Retired Radioactive Liquid Waste Sewer System, Crib Waste System, Contaminated Sewer, Intermediate Level Radioactive Liquid Waste System	/										
HASI	8378	R	300-112, 340 P-3 Pump Pit, Retention Process Sewer Pump Pit #3 French Drain, Miscellaneous Stream #428	/										

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Release Sites

Site Code	RSF ID	Change Flag	Description	Class/Subclass Name	Planned Assess. Year	Forecast Assess. Year	Actual Assess. Date	Planned Comp. Year	Forecast Comp. Year	Actual Comp. Date	Acc. Year	No Action	Comp. Status	RAD
HASI	8379	R	300-113, 340 Building Steam Condensate/ Water Heater Overflow, Miscellaneous Stream #341	/										
HASI	8380	R	300-114, 340A Building Steam Condensate, Miscellaneous Stream #427	/										
HASI	8381	R	300-115, 340B Building Backflow Preventer Emergency Drain, Miscellaneous Stream #426	/										
HASI	8382	R	300-15, 300 Area Process Sewer System	/										
HASI	8383	R	300-175, 3714 Building Steam Condensate, Miscellaneous Stream #434	/										
HASI	8384	R	300-214, 300 Area Retention Process Sewer	/										
HASI	8385	R	300-34, 300 Area Process Sewer Leak (found during Project L-070 excavation at manhole PS-87)	/										
HASI	8386	R	300-40, Corrosion of Vitrified Clay Sewer Pipe	/										
HASI	8387	R	307 RB, 307 Retention Basins	/										
HASI	8388	R	316-3, 307 Disposal Trenches, Process Water Trenches	/										
HASI	8389	R	340 CHWSA, 340 Complex HWSA, 340 Complex Hazardous Waste Storage Area	/										
HASI	8390	R	340 COMPLEX, 340 Radioactive Liquid Waste Handling Facility	/										
HASI	8391	R	600-117, 300 Area Treated Effluent Disposal Facility (TEDF), 310 Building	/										
HASI	8392	R	600-210, 300 Area TEDF Outfall	/										
HASI	8393	R	600-211, State Approved Land Disposal Site,	/										

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Release Sites

Site Code	RSF ID	Change Flag	Description	Class/Subclass Name	Planned Assess. Year	Forecast Assess. Year	Actual Assess. Date	Planned Comp. Year	Forecast Comp. Year	Actual Comp. Date	Acc. Year	No Action	Comp. Status	RAD
			SALDS, 616A											
HASI	8394	R	6607-16, Septic Tank, Project C-018H, ECN- C018H-040	/										
HASI	8395	R	UPR-300-1, 316-1, 316-1A, 307-340 Waste Line Leak, UN-300-1	/										
HASI	8396	R	UPR-300-11, Underground Radioactive Liquid Line Leak, UN-300-11	/										
HASI	8397	R	UPR-300-2, Releases at the 340 Facility, UN-300-2, UN-316-2	/										
HASI	8398	R	UPR-300-41, 300 Area #340 Building Phosphoric Acid Spill, UN-300-41	/										

Technology Needs

Site Need Code: **RL-MW020**

Site Need Name: **Solidification of High Salt Wastes**

Focus Area Work Package ID: **MW-04**

Focus Area Work Package: **Efficient Stabilization of High Metal Content Salts and Ash Waste**

Focus Area: **MWFA**

Agree with Technology Link: **Y**

Benefits (Cost, Risk Reduction, Both): **Both**

Technologies

Cost Savings (in thousands of dollars)

Range of Estimate

Salt and Ash Stabilization - Stabilize Waste using Phosphate Ceramic Process

Salt and Ash Stabilization - Stabilize High Salt Content Waste Using Cementitious Process

Stabilization of Salt Using Encapsulation with Polyester Resin

Salt and Ash Stabilization - Stabilize High Salt Content Waste Using Sol Gel Process

Salt and Ash Stabilization - Stabilize High Salt Content Waste Using Polysiloxane Process

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Technology Needs

Site Need Code: RL-MW021

Site Need Name: Control of Equipment Corrosion Caused by Chloride

Focus Area Work Package ID: MW-08

Focus Area: MWFA

Benefits (Cost, Risk Reduction, Both):

Focus Area Work Package: Facilitating Deployment for Unique Wastes

Agree with Technology Link: Y

Technologies

Cost Savings (in thousands of dollars)

Range of Estimate

Site Need Code: RL-MW022

Site Need Name: Identification and Control of Biological Foulants

Focus Area Work Package ID: MW-08

Focus Area: MWFA

Benefits (Cost, Risk Reduction, Both):

Focus Area Work Package: Facilitating Deployment for Unique Wastes

Agree with Technology Link: Y

Technologies

Cost Savings (in thousands of dollars)

Range of Estimate

Site Need Code: RL-MW023

Site Need Name: Tritium Removal from Wastewater

Focus Area Work Package ID: MW-08

Focus Area: MWFA

Benefits (Cost, Risk Reduction, Both):

Focus Area Work Package: Facilitating Deployment for Unique Wastes

Agree with Technology Link: Y

Technologies

Cost Savings (in thousands of dollars)

Range of Estimate

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Technology Needs